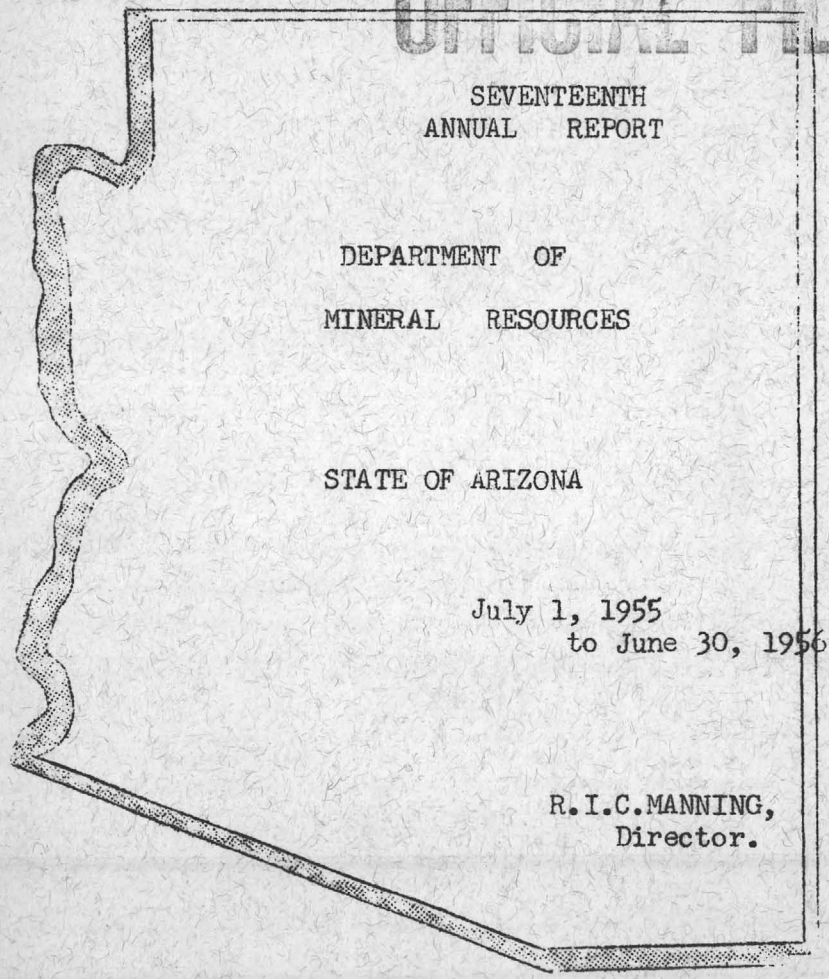

SEVENTEENTH ANNUAL REPORT

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

July 1, 1955
to June 30, 1956.

R.I.C.MANNING,
Director.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

BOARD OF GOVERNORS:

Charles F. Willis, Phoenix - Chairman
(term expires January 31, 1961)

Edwin W. Mills, Salome - Vice-chairman
(term expires January 31, 1958) (Dec'd 6-5-56)

H. F. Mills, Humboldt
(term expires January 31, 1959)

T. J. Long, Globe
(term expires January 31, 1957)

Stanley M. Secrist, Tucson
(term expires January 31, 1960)

PERSONNEL:

R.I.C.Manning - Director
W. C. Broadgate - Special Assistant
A.L.Flagg - Museum Curator
Mark Gemmill - Field Eng'r - Northern District
Axel L. Johnson - Field Eng'r - Southern Dist.
Bayard J. Squire - Field Eng'r - Central Dist.
Frank J. Tuck - Statistical Engineer
Mrs. Glenn W. Pare - Office Secretary
Mrs. George L. Dunagan - Stenographer

To the Honorable Ernest W. McFarland
Governor of Arizona
Capitol Building
Phoenix, Arizona

Dear Governor McFarland:

I am pleased to submit herewith the Annual Report of the Department of Mineral Resources covering the fiscal year 1955-56.

Respectfully,

R.I.C.Manning,
Director.

FINANCIAL STATEMENT
July 1, 1955 - June 30, 1956

DEPARTMENT APPROPRIATION:		$ 66,420.00
EXPENDITURES:		
Personal Services	44,770.00	
Emp'r share OASI & Ret	2,156.09	
Travel - State	6,622.36	
Out of State	222.55	
Current Expenditures:		
Utilities	718.99	
Tel & Tel	657.27	
Postage	667.08	
Equip Mtnce, etc	595.56	
Printing	1,024.74	
Supplies: Office, Eng'r	1,439.70	
Fixed charges	90.72	
Subs & Org Dues	34.17	
Capital Outlay	991.50	
		$ 59,990.33-
Returned to General Fund		$ 6,429.67
Deposits from sale of Regulations booklet to out-of-state residents		$ 24.30
Insurance recovered - theft-typewriter		$ 80.00

MUSEUM ACCOUNT

DEPOSITS and Brought Forward		$ 10,198.43
EXPENDITURES:		
Personal Services	8,615.20	
Miscl.	10.00	
		$ 8,625.20-
Forward		$ 1,573.23

FINANCES

We are returning to the General Fund $6,429.67 of unused funds from our budget of $66,420.00. The balance is principally from travel and current expenditures items. We had requested funds for the employment of an additional engineer and included in our budget were allowances for travel and equipment. We failed to get an appropriation for salary but the travel and equipment items were included in the appropriation.

Again we were fortunate in getting through the year without any major repairs to our heating and cooling equipment.

Due to limited personnel in the Phoenix office the Director was unable to do much traveling in the State.

OFFICES:

The headquarters office of the Department is located in the Mineral Building at the State Fairgrounds, McDowell Road and Nineteenth Avenue, Phoenix.

The field offices are located as follows:

Northern District:
Chamber of Commerce Building
150 South McCormick
Prescott, Arizona

Southern District:
Chamber of Commerce Building
420 West Congress Street
Tucson, Arizona

Central District
Mineral Building, Fairgrounds
McDowell Road & 19th Avenue
Phoenix, Arizona

The Prescott and Tucson Chambers of Commerce have graciously furnished space to the Department at no cost to the State and the many favors extended are gratefully acknowledged.

EXCERPTS FROM THE LAW CREATING THE ARIZONA DEPARTMENT OF MINERAL RESOURCES

"Aid in the promotion and development of the mineral resources of the State.

Conduct studies of the economic problems of prospectors and operators of small mines with a view to assisting in their solution.

Assist in discovering sources of supply for persons desiring to buy minerals.

List and describe available mining properties.

Make mineral resource surveys and conduct such other investigations as may interest capital in the development of the State's mineral resources.

Serve as a bureau of mining information in conjunction with the Arizona Bureau of Mines.

Publish and disseminate such information and data as may be necessary or advisable to attain its objectives.

Cooperate with the State Land Department to encourage mining activity on state lands.

Cooperate with the Corporation Commission in its investigations and administration of laws relating to the sale of mining securities.

Cooperate with the Arizona Bureau of Mines, and turn over to said Bureau such problems as the field work of the division may show to be within the scope of the activities of said Bureau.

Cooperate with federal and other agencies having for their purposes the development of mines and minerals.

Work against all congressional acts favoring reciprocal or duty free imports of foreign materials.

Do such other things as may assist the more extensive exploration and development of the Mineral Resources of the State."

Fifty-six new specimens were added to the permanent collection. There were no changes in the loan exhibits. Twelve Yuma County specimens were given by Earl Mayer of Yuma and eight representative specimens from the Tri-State district were donated by E. L. Gilmore of Tulsa. Other specimens are from various localities both in this country and abroad. The smallest but probably the most popular specimen at the moment is a bit of germanite from the Belgian Congo. This is one of the ores from which germanium is recovered. Though neither large nor spectacular it satisfies the curiosity of people who want to know what a germanium ore looks like.

A full set of 225 Burrlee crystal models, illustrating the six crystal systems was purchased in early 1956. This is a valuable help to students of crystallography.

Nearly two hundred requests for various types of information on the mineral resources of Arizona have been answered. Most of these originated in the public schools. Over three hundred mineral kits have been supplied to school children in forty-one states.

Increased publicity together with broadening and expansion of our facilities combine to improve the attendance record which more than justifies the project.

Mine Production of Copper, Lead, Zinc, Gold and Silver in Arizona for 1954 by Class of Ore.

MINERAL MUSEUM

The Mineral Building, which houses the Museum, was the first modern building on the Fairgrounds. Begun in 1917 it was not completed, due to lack of funds, until 1919 when the mining companies in Arizona came forward with the necessary money not only to complete but also fully equip the building. Charles F. Willis and the late James A. (Jimmy) Goodwin toured the State in quest of specimens, bringing back to the newly completed building outstanding examples of Arizona minerals. During the Fair of 1919, the new Mineral Building was thronged with visitors. Thereafter the exhibit was open to the public only for the ten-day period of the Fair.

In 1953 six Arizona mining companies - Kennecott, Magma, Miami, Inspiration, Phelps Dodge and the American Smelting & Refining Co. set up a fund to keep open the Museum all the year. Originally it was open five and a half days a week, corresponding with the office hours of this Department. Beginning in February 1956 arrangements were made to keep it open from 2:00 to 5:00 PM Saturday and Sunday, September thru May.

During the last fiscal year there have been 13,649 visitors in the Museum. Of this number approximately 2,000 were in attendance at regular organization meetings while about an equal number attended special events in the auditorium. Some 844 school children in groups visited the Museum this year, the largest number since the program was initiated.

Based on preliminary estimates of 1955 output (according to the U.S.Bureau of Mines), Arizona ranked first in copper production in the United States (including Alaska), as it has done for the last forty-six years. It ranked fourth in silver, fifth in gold, eighth in lead, and ninth in zinc.

Arizona production and value of the five principal metals in 1955, were as follows: (Preliminary figures)

452,000 tons	copper	@ 37.0¢ lb	$ 334,480,000
9,450 tons	lead	@ 14.9¢ lb	2,816,100
22,600 tons	zinc	@ 12.3¢ lb	5,559,600
128,600 oz	gold	@ $35.00 oz	4,501,000
4,723,000 oz	silver	@ 90.5¢ oz	4,274,554
			$ 351,631,254

This compares with the following actual figures for 1954:

377,927 tons	copper	@ 29.5¢ lb.	$ 222,976,930
8,385 tons	lead	@ 13.7¢ lb	2,297,490
21,461 tons	zinc	@ 10.8¢ lb	4,635,576
114,809 oz	gold	@ $35.00 oz	4,018,315
4,298,811 oz.	silver	@ 90.5¢ oz	3,890,641
			$ 237,818,952

ARIZONA'S METAL

Source: U. S.

	GOLD oz.	SILVER Oz	COPPER lbs
1946	79,024	3,268,765	578,446,000
1947	95,860	4,569,084	732,436,000
1948	109,487	4,837,740	750,242,000
1949	108,993	4,790,736	718,020,000
1950	118,313	5,325,441	806,602,000
1951	116,093	5,120,985	831,740,000
1952	112,355	4,701,330	791,438,000
1953	112,824	4,351,429	787,050,000
1954	114,809	4,298,811	755,854,000
1955*	128,600	4,723,000	904,000,000

* Preliminary

RELATIVE 1955

Preliminary

	United States	Arizona	Arizona %
Gold - oz	1,884,186	128,600	6.83
Silver -oz	36,734,565	4,723,000	12.86
Copper -Tons	992,600	452,000	45.54
Lead - tons	333,428	9,450	2.83
Zinc - tons	503,800	22,600	4.49

Information for Prospective Shippers of Arizona Copper-Lead-Zinc Ores and Concentrates

State Production Copper, Lead, Zinc, Gold & Silver in Arizona, other leading States, etc.

Comparative Production & Value of Copper, Lead, Zinc, Gold & Silver in 5 Western States of Arizona, etc.

Comparison of Property Taxes; Sales Taxes; & State Income Taxes paid by Mining Industries in Arizona, Montana, etc. Fiscal years 1951-52-53 & 54. Digest of tax laws.

Salient Statistics of U S Copper Industry 1953-54 & 1955. Prel. review of 1955 Production.

Salient U S Lead Statistics for 1953-54-55. Prel. review of 1955 Production.

Salient U S Zinc Statistics for 1953-54-55. Prel. review of 1955 Production.

Tables and Charts showing Estimated Hours and Earnings in Selected Industries in Arizona, etc.

Addendum to Information for Prospective Shippers, etc.

Comparison of Average Weekly Earnings, Weekly Hrs. and Hourly Earnings of Production Workers, etc.

Wage Statistics and Copper Output in Arizona Copper Mines

U S and Arizona Copper Statistics 1955 & 1st Quarter 1956.

U S and Arizona Lead Statistics 1955 and 1st Quarter 1956.

Of particular interest to Arizona mines were programs dealing with Manganese, Asbestos, Mercury, Fluorspar, Tungsten and Uranium.

The statistical department issued the following reports which were sent out to a mailing list of almost two hundred companies, legislators, governmental agencies, chambers of commerce, banks, newspapers and individuals, and to the Capitol Library, as well as other city libraries:

History of Mining in Arizona

Importance of Copper Mining to State of Arizona

Tons Recoverable Copper Mined in Arizona, U S & World, U S Copper Price, etc.

Salient U S Copper Statistics

Final Valuation of all Properties Assessed to Producing Mining Companies for 1955.

Proposed Repeal of Silver Purchase Act of 1934. Government Purchase Price of Silver, etc.

Arizona Production of Copper, Lead, Zinc, Gold & Silver 1858-1954, incl. by years since 1900

Preliminary Estimate of Copper, Lead, Zinc, Gold & Silver in Arizona & U S 1955.

Mine Production of Copper, Lead, Zinc, Gold & Silver in Arizona 1858-1954, Incl. 1955 Estimated

Assessed Valuations of Each Class of Property in Arizona - 1951 to 1955 incl.

Mineral Production of Arizona in 1955 - USBM Preliminary figures Large and Small Mine Production.

PRODUCTION

Bureau of Mines

LEAD lbs	ZINC lbs	TOTAL VALUE
47,860,000	87,330,000	$ 114,986,254
57,132,000	109,288,000	182,752,537
59,798,000	108,956,000	196,207,948
67,136,000	141,316,000	177,894,134
52,766,000	120,960,000	201,033,694
34,786,000	105,998,000	235,289,045
33,040,000	94,286,000	220,686,278
18,856,000	55,060,000	242,572,489
16,770,000	42,922,000	237,818,952
18,900,000	45,200,000	351,631,254

PRODUCTION

Figures

Arizona's Place	Leading State	Production
5	So. Dakota	527,400
4	Idaho	13,978,990
1	Arizona	452,000
8	Missouri	126,000
9	Montana	68,183

SUMMARY OF ARIZONA PRODUCTION AND VALUE

(Excluding uranium and shipments of

Mineral	Short Tons (Unless otherwise stated)
Copper	452,000
Lead	9,450
Zinc	22,600
Gold (ounces)	128,600
Silver (ounces)	4,723,000
Mercury (76lb flasks)	370
Molybdenum (pounds)	1,398,000
Tungsten (60% WO_3)	130
Clay	265,000
Coal	5,000
Lime	80,200
Mica (scrap)	1,500
Perlite (crude)	2,000
Pumice and Pumicite	3,420
Sand and Gravel	3,900,000
Stone	1,200,000
Undistributed: Asbestos, barite, feldspar, fluorspar, lithium, silica (quartz) minerals whose value must	

1/ Value included with undistributed.

Arizona uranium production, for the most part, is still from the Navajo Indian Reservation.

A few mines are operating in the Sierra Ancha district of Gila County and shipping to the AEC purchase depot at Cutter. Production from this area has been hampered by poor roads and it is hoped that the completion of a road in the vicinity of Cherry Creek will result in a considerable increase.

There has been a noticeable slowing down of interest on the part of prospectors in their search for radio active materials.

The field engineers traveled 59,906 miles, attended 118 meetings, visited 367 mines and held 67 conferences.

There were 6,884 visitors to the field and Phoenix offices, exclusive if the Museum.

Out of state meetings attended by the Director - The American Mining Congress at Las Vegas, Nevada and the Western Governors Mining Advisory Council in Sacramento, California.

The Department participated in, at the request of the State Land Department, hearings on a proposed revision of the State law governing mining on State land. As a result of these meetings a bill was drafted and it was introduced in the State Legislature as S B 31.

In Washington we furnished our members of Congress information on matters affecting mining in Arizona and elsewhere. We cooperated with Federal and State agencies and gathered data for dissemination to the industry thru our Phoenix and field offices.

Since many of the GSA purchase contracts were due to expire during the later part of the year much of our effort in Washington was directed toward the extension of these programs and the establishment of new ones.

the end of June and efforts are being made to have the program extended.

Following the closing of the Wenden, Ariz. manganese depot in May, 1955, those properties that could economically do so shipped to Deming, New Mex. depot with the result that the quota of this depot was filled and the depot closed Nov. 30, 1955. Since then a number of the larger well financed properties with good ore bodies have constructed concentrators and are shipping 40% and better manganese on the carlot program. The Mohave Min.& Mill. Co. of Wickenburg has also built and is operating a sintering plant for sintering fine concentrates from their two mills and are handling some concentrates from other mining companies on a custom basis.

There are presently six manganese concentrators operating and manganese production is increasing. Practically all of the Arizona metal is being purchased by the General Services Administration thru the carlot program for the Nat'l stockpile. The Wenden and Deming depots purchased ores as low as 15% manganese content and the average was around 20% while the carlot program requirements are 40% and better.

Efforts are being made to extend the life of the carlot program and to reopen both the Wenden and Deming low grade purchase depots.

A few tungsten properties operated throughout the year but production was off from the preceding year. Small producers were handicapped by limited markets particularly for concentrates below 60% WO_3.

All production was shipped to the General Services Administration or to concentrating plants for transhipment to the GSA.

The few custom mills that bought ores and low grade concentrates discontinued this practice for the most part when they were held responsible for the origin of ores and concentrates whether domestic or foreign.

OF METALS AND NON-METALLICS IN 1955

manganese ore to Gov't purchase depots)

Unit Value	Total Value
$ 0.370	$ 334,480,000
0.149	2,816,100
0.124	5,559,600
35.00	4,501,000
0.905	4,274,554
	$ 351,631,254
$ 290.00	107,300
0.99	1,384,000
3461.60	450,000
3.208	850,000
6.00	60,000
-	1/
10.533	15,800
7.00	14,000
3.50	11,970
0.82	3,198,000
1.55	1,860,000
beryllium, cement, gem stones, gypsum, vanadium and be concealed	8,750,676
TOTAL VALUE	$ 368,258,000

As of July 1, 1956 according to the Department's field engineers, there were 156 active mines in the State of which 128 were classed as metal mines and 28 non-metallic. Of the 28 non-metallic, 8 were asbestos. Of the 128 metallic mines, 41 were copper producers, 4 were manganese, 18 tungsten, 35 lead or zinc producers and 37 uranium. Many of these metal mines produced more than one of these metals.

The Arizona Employment Security Comm. reported for 1955 that there were employed in mining and quarrying a total of 14,413 covered employees with a total payroll of $79,785,921, and an average annual wage of $5,536. Smelting employment brings the grand total payroll to $88,169,921, with an average of 16,013 covered employees earning an average of $5,506 per year. Fringe benefits accounted for an estimated 18% of the regular copper mining and smelting payroll, bringing the grand total of mining, quarrying and smelting wages to over 104 millions of dollars.

Copper alone accounted for 91% of the total value of mineral output in Arizona in 1955, and the outstanding gain in copper production and value resulted from increased output by established producers and the first full year of operation for three open-pit mines - Copper Cities at Miami, Lavender Pit at Bisbee, and Silver Bell in Pima County. The Banner Mine in Pima County, was also a notable new producer in 1955.

The San Manuel smelter started producing copper blister in January of 1956, and the mine reached one-half its expected capacity during the first 6 months of this year. It is expected to be in full production during the last half of the year.

Labor strikes in August and Sept. of 1955, lost an estimated production of 25,000 tons of copper, but expanded operations and the new producers, mentioned above more than offset this loss.

According to the Engineering and Mining Journal, the average price of copper in 1955 was 37.5 cts per pound. However, the price used by the U S Bureau of Mines

in making their estimate was 37.0 cents.

Lead and zinc production in Arizona is still far short of the rate attained by the State during the years of favorable conditions for the industry. The Gov't stockpiling policy, while it has improved lead and zinc prices, has at the same time encouraged abnormal importation of these metals from foreign low-cost producers. A more favorable effect would have resulted if the recommendation of the Tariff Commission for a moderate increase in tariff had been adopted.

The domestic market for lead experienced only two price changes in 1955, an advance from 15¢ to 15½¢ on September 26 and another from 15½¢ to 16¢ on Dec. 29. The 16¢ price has been in effect since the first of this year. The USBM average for 1955 was 14.9¢; the E & M J average was 15.138¢.

The price of zinc averaged 11½¢ per lb during the 1st quarter of 1955; rose to 12¢ for April, May and most of June; was 12½¢ in July and August and 13¢ the remainder of the year. The USBM average for 1955 was 12.38¢; the E & M J average was 12.23¢. During the first six months of this year, 1956, zinc has averaged 13½¢ per pound.

Asbestos mines in the Globe area were active throughout the year. There were 8 principal mines and 6 mills employing approximately 150 men. A large portion of the production was from properties located on the San Carlos Indian Reservation and since most of the employees are members of the Tribe, this segment of the mining industry has a large bearing on the economy of the Tribe.

About 4 tons of grade 1 and 2 and 4 tons of grade 3 are produced per day. Ninety-five percent of this is purchased by the GSA for the Globe Depot and the remaining 5 percent is exported at prices slightly higher than stockpile figures. However, the large GSA purchases no doubt sustain the high market.

The Globe Depot purchase program was due to expire at